

What we claim are:

Claim 1. Manufacture of a sensor device comprising organic thin films formed on an arbitrarily chosen electrode board circuit and electrodes, and a transducing element capable of transducing information recognized by the organic thin films into electric signals wherein:

a solution of a material of the thin film is accurately printed via an ink-jet nozzle as micro-dots onto the required surfaces of microelectrodes so that organic thin films are formed on the electrodes, thereby realizing highly dense microelectrodes.

Claim 2. Manufacture of the sensor device wherein the solution of a material of the thin films described in claim 1 comprises a composition resulting from the dissolution of an electro-conductive polymer in a solvent.

Claim 3. Manufacture of the sensor device wherein the solution of a material of the thin film described in claim 1 comprises a solution of a silicone-based surface modifying agent, or a mixture thereof with a solvent.

Claim 4. Manufacture of the sensor device wherein the solution of a material of the thin film described in claim 1 comprises a mixture resulting from dissolution of a thiol compound in a solvent, and gold thin films are formed on the surface of the electrodes.

Claim 5. A method for evaluating the function of a liquid wherein, with the sensor device as described in claims 1 and 4, a solution of a substance or a liquid substance to be sensed is ejected into air via an ink-jet nozzle to fall as micro-dots on the surface of organic thin

membranes formed on the microelectrodes so that the substance is submitted to evaluation.

Claim 6. A method for evaluating the function of a solution wherein, with the sensor device, the solution of a substance or a liquid  
5 substance to be sensed and ejected as micro-dots into air via the ink-jet nozzle as described in claim 5 comprises a bio-molecule such as a protein, DNA, antibody, etc., or a physiologically active substance.

Claim 7. Manufacture of the sensor device as described through  
10 claim 1 to claim 4, wherein the electrodes and electric circuit are formed on a plastic substrate.

Claim 8. Manufacture of the sensor device as described in claim 7 wherein the electric circuit is composed of poly-silicone thin film transistors.

15 Claim 9. A method for evaluating the function of a solution as described in claims 5 and 6, wherein the electrodes and electric circuit are formed on a plastic substrate.

Claim 10. A method for evaluating the function of a solution as described in claim 9, wherein the electric circuit is composed of  
20 poly-silicone thin film transistors.